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EXAMINER	
SMITH, JOSHUA Y	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/566,568	CHRISTENSEN, CARL	
	Examiner	Art Unit	
	JOSHUA SMITH	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 January 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The preliminary amendment filed 01/31/2006 has been entered.

- **Claims 1-10 are pending.**
- **Claims 1-10 stand rejected.**

Claim Objections

1. Claim 1 objected to because of the following informalities: Claim 1 states "having a plurality of input cards **(410)**" (emphasis added), where "(410)" appears to be mistakenly stated in Claim 1. Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a number of inputs to the at least one input chassis is different than a number of outputs from the at least one output chassis" of Claim 2, "a control card, disposed in at least one of the at least one input chassis and the at least one output chassis, for providing support protocols to change input/output assignments of the data" of Claim 3, "the expansion card provides support protocols to change input/output assignments of the data" of Claim 4, "the matrix card provides support protocols to change input/output assignments of the data" of Claim 5, "the plurality of input cards condition the data subsequent to an initial receipt thereof" of Claim 6, "the expansion card arranges the data using time division multiplexing" of Claim 7, "the matrix card conditions the data prior to outputting the data

external to the broadcast router" in each of Claims 8 and 10, "the plurality of input cards for receiving and conditioning data" of Claim 9, "a control card, disposed within at least one of the at least one input chassis and the at least one output chassis, for providing support protocols to change input/output assignments of the data" of Claim 9, and "a number of inputs to the input chassis is different than a number of outputs from the output chassis" of Claim 9, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 2-10** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5. **Claim 2** states "a number of inputs to the at least one input chassis is different than a number of outputs from the at least one output chassis". The specification does not adequately disclose **how** a number of inputs of an input chassis is different from a number of outputs from an output chassis, in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

6. **Claim 3** states "a control card, disposed in at least one of the at least one input chassis and the at least one output chassis, for **providing support protocols to change input/output assignments of the data**" (emphasis added by examiner). The specification does not adequately disclose **how** a control card goes about "providing support protocols", and the specification does not adequately disclose **how** support protocols are utilized to "change input/output assignments of the data", in such a

manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

7. **Claim 4** states "the expansion card provides support protocols to change input/output assignments of the data". The specification does not adequately disclose **how** an expansion card goes about "providing support protocols", and the specification does not adequately disclose **how** support protocols are utilized to "change input/output assignments of the data", in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

8. **Claim 5** states "the matrix card provides support protocols to change input/output assignments of the data". The specification does not adequately disclose **how** a matrix card goes about "providing support protocols", and the specification does not adequately disclose **how** support protocols are utilized to "change input/output assignments of the data", in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

9. **Claim 6** states "the plurality of input cards condition the data subsequent to an initial receipt thereof". The specification does not adequately disclose **how** "input cards condition the data" after an initial receipt of the data, in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

10. **Claim 7** states "the expansion card arranges the data using time division multiplexing". The specification does not adequately disclose **how** an expansion card "arranges the data using time division multiplexing", in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

11. **Claims 8 and 10** each states "the matrix card conditions the data prior to outputting the data external to the broadcast router". The specification does not adequately disclose **how** "the matrix card conditions the data" before data is output from a broadcast router, in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

12. **Claim 9** states "the plurality of input cards for receiving and conditioning data". The specification does not adequately disclose **how** "input cards" go about "conditioning

data", in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

13. **Claim 9** states "a control card, disposed within at least one of the at least one input chassis and the at least one output chassis, for **providing support protocols to change input/output assignments of the data**" (emphasis added by examiner). The specification does not adequately disclose **how** a control card goes about "providing support protocols", and the specification does not adequately disclose **how** support protocols are utilized to "change input/output assignments of the data", in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

14. **Claim 9** states "a number of inputs to the input chassis is different than a number of outputs from the output chassis". The specification does not adequately disclose **how** a number of inputs of an input chassis is different from a number of outputs from an output chassis, in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention.

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. **Claims 3-10** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

17. **Claim 3** states "a control card, disposed in at least one of the at least one input chassis and the at least one output chassis, for **providing support protocols to change input/output assignments of the data**" (emphasis added by examiner). This is indefinite since it is unclear **how** a control card goes about "providing support protocols", and this is indefinite since it is unclear **how** support protocols are utilized to "change input/output assignments of the data". Examiner will treat the above excerpt to indicate that a control card contains the capability to change the mappings of data paths through a chassis contained in a router.

18. **Claim 4** states "the expansion card provides support protocols to change input/output assignments of the data". This is indefinite since it is unclear **how** an expansion card goes about "providing support protocols", and this is indefinite since it is unclear **how** support protocols are utilized to "change input/output assignments of the data". Examiner will treat the above excerpt to indicate that an expansion card contains the capability to change the mappings of data paths through a chassis contained in a router.

19. **Claim 5** states "the matrix card provides support protocols to change input/output assignments of the data". This is indefinite since it is unclear **how** a matrix card goes about "providing support protocols", and this is indefinite since it is unclear **how** support protocols are utilized to "change input/output assignments of the data". Examiner will

treat the above excerpt to indicate that a matrix card contains the capability to change the mappings of data paths through a chassis contained in a router.

20. **Claim 6** states "the plurality of input cards condition the data subsequent to an initial receipt thereof". This is indefinite since it is unclear **how** "input cards condition the data" after an initial receipt of the data, in such a manner that one of ordinary skill in the art at the time of the invention could make and use the claimed invention. Examiner will treat the above excerpt to indicate that inputs cards convert data signals between a physical layer protocol form, such as an optical form, and an electrical form that is utilized within a chassis.

21. **Claim 7** states "the expansion card arranges the data using time division multiplexing". This is indefinite since it is unclear **how** an expansion card "arranges the data using time division multiplexing". Examiner will treat the above excerpt to indicate that an expansion card utilizes routing or switching for time division multiplexed data and applies a form of time division multiplexing.

22. **Claims 8 and 10** each states "the matrix card conditions the data prior to outputting the data external to the broadcast router". This is indefinite since it is unclear **how** "the matrix card conditions the data" before data is output from a broadcast router. Examiner will treat the above excerpt to indicate that a matrix card converts data signals

between a physical layer form, such as an optical form, and an electrical form that is utilized within a chassis, before a the data is actually transmitted from the router.

23. **Claim 9** states "the plurality of input cards for receiving and conditioning data". This is indefinite since it is unclear **how** "input cards" go about "conditioning data". Examiner will treat the above excerpt to indicate that inputs cards convert data signals between a physical layer protocol form, such as an optical form, and an electrical form that is utilized within a chassis.

24. **Claim 9** states "a control card, disposed within at least one of the at least one input chassis and the at least one output chassis, for **providing support protocols to change input/output assignments of the data**" (emphasis added by examiner). This is indefinite since it is unclear **how** a control card goes about "providing support protocols", and this is indefinite since it is unclear **how** support protocols are utilized to "change input/output assignments of the data". Examiner will treat the above excerpt to indicate that a control card contains the capability to change the mappings of data paths through a chassis contained in a router.

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

27. **Claims 1, 3-6 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Toutant et al. (Pub. No.: US 2003/0099247 A1) in view of Mehrvar et al. (Pub. No.: US 2003/0161303 A1) and Honig et al. (Patent No.: US 6,487,171 B1), hereafter respectively referred to as Toutant, Mehrvar, and Honig.

28. **In regard to Claim 1**, Toutant teaches in paragraphs [0026], [0027], and [0035], and in FIG. 1, a chassis 100 (FIG. 1) (an input chassis) includes a plurality of line cards 110 (FIG. 1) (a plurality of input cards) for interfacing with an external network 120 (FIG. 1), and an interconnection module 140 (FIG. 1) (an expansion card), where line cards 110 provide an optical or electrical interface to the network 120 (FIG. 1), and data in the form of packets (or ATM cells or SONET frames or the like) are exchanged with the network 120 (FIG. 1) via the line cards 110 (FIG. 1), and where some of the line cards 110 (FIG. 1) may be input line cards for receiving packets from a network 120 (input cards for initially receiving data into a router), and an interconnection module 140 (FIG. 1) may be a separate card in the chassis 100 (FIG. 1) and includes a plurality of switch-side ports that establish paths P_0-P_{95} with the switch-side ports of the processing cards 130 (FIG. 1) (an expansion card for respectively receiving data from a plurality of input

cards) and includes a plurality of optical ports A, B, C, D (FIG. 1) for establishing a plurality of full-duplex optical paths with optical ports of other chassis of the router (arranging data for transfer within a router) (an input chassis, having a plurality of input cards for initially receiving data into a router, and an expansion card for respectively receiving data from a plurality of input cards and arranging data for transfer within a router).

29. Toutant teaches in paragraphs [0027] and [0048], and in FIG. 1 and FIG. 3A, a router 300 (FIG. 3A) comprising two interconnected chassis 310, 320 (FIG. 3A), where each of the chassis 310, 320 is identical to the chassis described with reference to FIG. 1 (an output chassis having a matrix card), and where line cards 110 (FIG. 1) may be output line cards (output cards), for transmitting packets to a network 120 (FIG. 1), and an interconnection module 140 (FIG. 1) (a matrix card) may be a separate card in the chassis 100 (FIG. 1), and optical fiber bundle 399_A establishes 32 full-duplex optical paths between optical ports A_{310} and A_{320} (a matrix card for receiving data from one input chassis) (an output chassis having a matrix card and a plurality of output cards, a matrix card for receiving data from one input chassis and for routing data to appropriate one of output cards, and a plurality of output cards for respectively receiving data from a matrix card and for outputting data external to a router).

30. Toutant fails to teach an input chassis is without any output cards including a plurality of output cards, an output chassis is without any input cards including a plurality of input cards, and a broadcast router.

31. Mehrvar teaches in paragraphs [0024], [0025], and [0034], and in FIG. 1 and FIG. 2, each input interface 4 (FIG. 2) (input chassis) operates to process traffic streams received through respective upstream channels 10 (FIG. 2) of a network, where an input interface 4 will have a set of input ports 12 (FIG. 2) (input cards), each of which is designed to receive inbound traffic through one or more respective upstream channels 10 of a network, and an input queue 26 is used to buffer data packets (an input chassis is without any output cards including a plurality of output cards).

32. Mehrvar teaches in paragraphs [0028] and [0034], an output interface 8 (FIG. 2) (output chassis) has a set of output ports 18 (FIG. 2) (output cards), each of which is designed to launch one or more outbound traffic streams into respective downstream channels 20 (FIG. 2) of a network, and there is a respective virtual port 28 (FIG. 2) in each output interface 8 (FIG. 2) (an output chassis is without any input cards including a plurality of input cards).

33. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Mehrvar with the invention of Toutant since Mehrvar provides a method for efficiently transporting traffic flows with differing latency requirements across a common network infrastructure, and where each (see Mehrvar, paragraphs [0009] and [0010]), which can be introduced into the system of Toutant to ensure every path is optimized to satisfy respective different latency requirements for packets.

34. Honig teaches in column 1, lines 42-44, and in column 2, lines 30-33 and 43-45, and in column 46-49, and in FIG. 2 and FIG. 4, for broadcast connections, routing

information identifies a packet as a broadcast packet that is to be distributed to all output ports, and where an I/O interface (I/F) card 20 (FIG. 2) contains a controller/packet processor 26 (FIG. 2) that functions to receive packets and route them to the appropriate output queue, and, in FIG. 4, coupled to the N input ports are N I/F cards 52 (FIG. 4), where each I/F card is constructed and operates similarly to that of I/F card 20 (FIG. 2) (a broadcast router).

35. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Honig with the invention of Toutant since Honig provides a matrix that improves the transmission of variable length broadcast packets, greatly reducing latency when transmitting broadcast packets (see Honig, column 3, lines 58-65), which can be introduced into the system of Toutant to aid in satisfying latency requirements of broadcast packets that are forwarded through the system of Toutant.

36. **In regard to Claim 3**, as discussed in the rejection of Claim 1, Toutant in view of Mehrvar and Honig teaches a broadcast router, an input chassis, and an output chassis.

37. Toutant teaches in paragraphs [0043] and [0044], and in FIG. 1 and FIG. 2, a connection map applied by the switch fabric 200 (FIG. 2) is controlled by a controller 250 (FIG. 2) (a control card), which may be embodied as a microprocessor, FPGA, EEPROM, etc., and a format of the connection map is output by a controller 250, and where a controller 250 would be responsible for providing two 140 x 140 connection maps, one to each of the cross-point switches 230, 240 (FIG. 2), and by changing the

content of the connection maps, a controller 250 can change a mutual interconnection of the processor cards 130 (FIG. 1) within a chassis 100 (FIG. 1) and also an interconnection defined between processor cards 130 in chassis 100 and an external world relative to a chassis, which includes other chassis in a multi-chassis configuration, and where a controller 250 may be located in a chassis 100 itself on a separate controller card (a control card, disposed an input chassis, for providing support protocols to change input/output assignments of data).

38. **In regard to Claim 4**, as discussed in the rejection of Claim 1, Toutant in view of Mehrvar and Honig teaches a broadcast router and an input chassis containing an expansion card.

39. Toutant teaches in paragraphs [0043] and [0044], and in FIG. 1 and FIG. 2, a connection map applied by the switch fabric 200 (FIG. 2) is controlled by a controller 250 (FIG. 2), which may be embodied as a microprocessor, FPGA, EEPROM, etc., and a format of the connection map is output by a controller 250, and where a controller 250 would be responsible for providing two 140 x 140 connection maps, one to each of the cross-point switches 230, 240 (FIG. 2), and by changing the content of the connection maps, a controller 250 can change a mutual interconnection of the processor cards 130 (FIG. 1) within a chassis 100 (FIG. 1) and also an interconnection defined between processor cards 130 in chassis 100 and an external world relative to a chassis, which includes other chassis in a multi-chassis configuration, and where a controller 250 may be located in a chassis 100 itself on a interconnection module 140 (FIG. 1) (an

expansion card) (an expansion card provides support protocols to change input/output assignments of data).

40. **In regard to Claim 5**, as discussed in the rejection of Claim 1, Toutant in view of Mehrvar and Honig teaches a broadcast router and an output chassis containing a matrix card.

41. Toutant teaches in paragraphs [0043] and [0044], and in FIG. 1 and FIG. 2, a connection map applied by the switch fabric 200 (FIG. 2) is controlled by a controller 250 (FIG. 2), which may be embodied as a microprocessor, FPGA, EEPROM, etc., and a format of the connection map is output by a controller 250, and where a controller 250 would be responsible for providing two 140 x 140 connection maps, one to each of the cross-point switches 230, 240 (FIG. 2), and by changing the content of the connection maps, a controller 250 can change a mutual interconnection of the processor cards 130 (FIG. 1) within a chassis 100 (FIG. 1) and also an interconnection defined between processor cards 130 in chassis 100 and an external world relative to a chassis, which includes other chassis in a multi-chassis configuration, and where a controller 250 may be located in a chassis 100 itself on a interconnection module 140 (FIG. 1) (a matrix card) (a matrix card provides support protocols to change input/output assignments of data).

42. **In regard to Claim 6**, as discussed in the rejection of Claim 1, Toutant in view of Mehrvar and Honig teaches a plurality of input cards and an initial receipt of data.

43. Toutant teaches in paragraph [0013], a chassis has a plurality of optical-to-electrical conversion units, each optical-to-electrical conversion unit being connected between a respective one of the optical input ports and a respective subset of the electrical input ports of an interconnection module, and a chassis also includes a plurality of electrical-to-optical conversion units, each electrical-to-optical conversion unit being connected between a respective subset of the electrical output ports of the interconnection module and a respective one of the optical output ports, and Toutant teaches in paragraph [0027] and in FIG. 1, line cards 110 (FIG. 1) (input cards) provide an optical or electrical interface to a network 120 (FIG. 1) (input cards condition data subsequent to an initial receipt thereof).

44. **In regard to Claim 8**, as discussed in the rejection of Claim 1, Toutant in view of Mehrvar and Honig teaches a broadcast router containing an output chassis that contains a matrix card.

45. Toutant teaches in paragraph [0035], and in FIG. 1, an interconnection module 140 (FIG. 1) further includes a plurality of optical ports A, B, C, D (FIG. 1) for establishing a plurality of full-duplex optical paths with optical ports of other chassis of a router (a matrix card conditions data prior to outputting data external to a router).

46. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Toutant in view of Mehrvar, Honig, and further in view of Libeskind (Pub. No.: US 2004/0165584 A1), hereafter referred to as Libeskind.

47. **In regard to Claim 2**, as discussed in the rejection of Claim 1, Toutant in view of Mehrvar and Honig teaches a number of inputs to an input chassis and a number of outputs from an output chassis.

48. Toutant fails to teach a number of inputs to an input chassis is different than a number of outputs from an output chassis.

49. Libeskind teaches in paragraphs [0019], [0020], [0025], [0026], [0050], and [0055], and in FIG. 2, each packer 211, 216 (FIG. 2) of a first stage 201 (FIG. 2) receives input data from the N respective switch inputs 250 (FIG. 2), where there are 48 inputs, and a third stage block 203a (FIG. 2) contains outputs 1-6 and outputs 7-12 (a number of inputs to an input chassis is different than a number of outputs from an output chassis).

50. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Libeskind with the invention of Toutant since Libeskind provides a an improved cross connect switch, where the number of “wasted bytes” in memory associated with each output is smaller than a conventional “output architecture” (see Libeskind, paragraphs [0005] and [0014]), which can be introduced into the system of Toutant to allow more efficient forwarding of data units that reduces the amount of memory occupied in processing data units, allowing the system of Toutant to utilize internal memory more efficiently.

51. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Toutant in view of Mehrvar, Honig, and further in view of Snow et al. (Patent Number: 6,125,111), hereafter referred to as Snow.

52. **In regard to Claim 7**, as discussed in the rejection of Claim 1, Toutant in view of Mehrvar and Honig teaches a broadcast router containing an expansion card.

53. Toutant fails to teach an expansion card arranges data using time division multiplexing.

54. Snow teaches in column 1, lines 13-17 and 21-24, and in column 66-67, and in FIG. 2, a time division multiplexed ("TDM") switching network, and a matrix is comprised of a bandwidth allocator 36a, 36b ("BWA") and a time division multiplex switch 38 (FIG. 2) (an expansion card arranges data using time division multiplexing).

55. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Snow with the invention of Toutant since Snow provides a modular communications system that overcomes the difficulty in conventional subsystems of isolating a failure of a single component that may effect the functioning of other components (see Snow, column 1, line 56 to column 2, line 2), which can be introduced into the system of Toutant to allow prompt isolation and replacement of components that can negatively effect the performance of the system of Toutant.

56. **Claims 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Toutant in view of Mehrvar, Honig, Libeskind, and Snow.

57. **In regard to Claim 9**, Toutant teaches in paragraphs [0026], [0027], and [0035], and in FIG. 1, a chassis 100 (FIG. 1) (an input chassis) includes a plurality of line cards 110 (FIG. 1) (a plurality of input cards) for interfacing with an external network 120 (FIG. 1), and an interconnection module 140 (FIG. 1) (an expansion card), where line cards 110 provide an optical or electrical interface to the network 120 (FIG. 1), and data in the form of packets (or ATM cells or SONET frames or the like) are exchanged with the network 120 (FIG. 1) via the line cards 110 (FIG. 1), and where some of the line cards 110 (FIG. 1) may be input line cards for receiving packets from a network 120 (input cards for initially receiving data into a router), and an interconnection module 140 (FIG. 1) may be a separate card in the chassis 100 (FIG. 1) and includes a plurality of switch-side ports that establish paths P.sub.0-P.sub.95 with the switch-side ports of the processing cards 130 (FIG. 1) (an expansion card for respectively receiving data from a plurality of input cards) and includes a plurality of optical ports A, B, C, D (FIG. 1) for establishing a plurality of full-duplex optical paths with optical ports of other chassis of the router (arranging data for transfer within a router) (an input chassis, having a plurality of input cards for receiving and conditioning data, and an expansion card for respectively receiving data from a plurality of input cards and arranging data for transfer within a router).

58. Toutant teaches in paragraphs [0027] and [0048], and in FIG. 1 and FIG. 3A, a router 300 (FIG. 3A) comprising two interconnected chassis 310, 320 (FIG. 3A), where each of the chassis 310, 320 is identical to the chassis described with reference to FIG. 1 (an output chassis having a matrix card), and where line cards 110 (FIG. 1) may be

output line cards (output cards), for transmitting packets to a network 120 (FIG. 1), and an interconnection module 140 (FIG. 1) (a matrix card) may be a separate card in the chassis 100 (FIG. 1), and optical fiber bundle 399_A establishes 32 full-duplex optical paths between optical ports A_{310} and A_{320} (a matrix card for receiving data from one input chassis) (an output chassis having a matrix card and a plurality of output cards, a matrix card for receiving data from one input chassis and for routing data to appropriate one of output cards, and a plurality of output cards for respectively receiving data from a matrix card and for outputting data external to a router).

59. Toutant teaches in paragraph [0013], a chassis has a plurality of optical-to-electrical conversion units, each optical-to-electrical conversion unit being connected between a respective one of the optical input ports and a respective subset of the electrical input ports of an interconnection module, and a chassis also includes a plurality of electrical-to-optical conversion units, each electrical-to-optical conversion unit being connected between a respective subset of the electrical output ports of the interconnection module and a respective one of the optical output ports, and Toutant teaches in paragraph [0027] and in FIG. 1, line cards 110 (FIG. 1) provide an optical or electrical interface to a network 120 (FIG. 1) (a device for conditioning data).

60. Toutant teaches in paragraphs [0043] and [0044], and in FIG. 1 and FIG. 2, a connection map applied by the switch fabric 200 (FIG. 2) is controlled by a controller 250 (FIG. 2) (a control card), which may be embodied as a microprocessor, FPGA, EEPROM, etc., and a format of the connection map is output by a controller 250, and where a controller 250 would be responsible for providing two 140 x 140 connection

maps, one to each of the cross-point switches 230, 240 (FIG. 2), and by changing the content of the connection maps, a controller 250 can change a mutual interconnection of the processor cards 130 (FIG. 1) within a chassis 100 (FIG. 1) and also an interconnection defined between processor cards 130 in chassis 100 and an external world relative to a chassis, which includes other chassis in a multi-chassis configuration, and where a controller 250 may be located in a chassis 100 itself, either on a separate controller card or on a interconnection module 140 (FIG. 1) (a control card, disposed within an input chassis, for providing support protocols to change input/output assignments of data).

61. Toutant fails to teach an input chassis is without any output cards including a plurality of output cards, an output chassis is without any input cards including a plurality of input cards, and a broadcast router, and a number of inputs to an input chassis is different than a number of outputs from an output chassis.

62. Mehrvar teaches in paragraphs [0024], [0025], and [0034], and in FIG. 1 and FIG. 2, each input interface 4 (FIG. 2) (input chassis) operates to process traffic streams received through respective upstream channels 10 (FIG. 2) of a network, where an input interface 4 will have a set of input ports 12 (FIG. 2) (input cards), each of which is designed to receive inbound traffic through one or more respective upstream channels 10 of a network, and an input queue 26 is used to buffer data packets (an input chassis is without any output cards including a plurality of output cards).

63. Mehrvar teaches in paragraphs [0028] and [0034], an output interface 8 (FIG. 2) (output chassis) has a set of output ports 18 (FIG. 2) (output cards), each of which is

designed to launch one or more outbound traffic streams into respective downstream channels 20 (FIG. 2) of a network, and there is a respective virtual port 28 (FIG. 2) in each output interface 8 (FIG. 2) (an output chassis is without any input cards including a plurality of input cards).

64. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Mehrvar with the invention of Toutant since Mehrvar provides a method for efficiently transporting traffic flows with differing latency requirements across a common network infrastructure, and where each (see Mehrvar, paragraphs [0009] and [0010]), which can be introduced into the system of Toutant to ensure every path is optimized to satisfy respective different latency requirements for packets.

65. Honig teaches in column 1, lines 42-44, and in column 2, lines 30-33 and 43-45, and in column 46-49, and in FIG. 2 and FIG. 4, for broadcast connections, routing information identifies a packet as a broadcast packet that is to be distributed to all output ports, and where an I/O interface (I/F) card 20 (FIG. 2) contains a controller/packet processor 26 (FIG. 2) that functions to receive packets and route them to the appropriate output queue, and, in FIG. 4, coupled to the N input ports are N I/F cards 52 (FIG. 4), where each I/F card is constructed and operates similarly to that of I/F card 20 (FIG. 2) (a broadcast router).

66. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Honig with the invention of Toutant since Honig provides a matrix that improves the transmission of variable length broadcast packets,

greatly reducing latency when transmitting broadcast packets (see Honig, column 3, lines 58-65), which can be introduced into the system of Toutant to aid in satisfying latency requirements of broadcast packets that are forwarded through the system of Toutant.

67. Libeskind teaches in paragraphs [0019], [0020], [0025], [0026], [0050], and [0055], and in FIG. 2, each packer 211, 216 (FIG. 2) of a first stage 201 (FIG. 2) receives input data from the N respective switch inputs 250 (FIG. 2), where there are 48 inputs, and a third stage block 203a (FIG. 2) contains outputs 1-6 and outputs 7-12 (a number of inputs to an input chassis is different than a number of outputs from an output chassis).

68. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Libeskind with the invention of Toutant since Libeskind provides a an improved cross connect switch, where the number of "wasted bytes" in memory associated with each output is smaller than a conventional "output architecture" (see Libeskind, paragraphs [0005] and [0014]), which can be introduced into the system of Toutant to allow more efficient forwarding of data units that reduces the amount of memory occupied in processing data units, allowing the system of Toutant to utilize internal memory more efficiently.

69. Snow teaches in column 1, lines 13-17 and 21-24, and in column 66-67, and in FIG. 2, a time division multiplexed ("TDM") switching network, and a matrix is comprised of a bandwidth allocator 36a, 36b ("BWA") and a time division multiplex switch 38 (FIG.

2) (an expansion card for receiving data and arranging data using time division multiplexing for transfer within a router).

70. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Snow with the invention of Toutant since Snow provides a modular communications system that overcomes the difficulty in conventional subsystems of isolating a failure of a single component that may effect the functioning of other components (see Snow, column 1, line 56 to column 2, line 2), which can be introduced into the system of Toutant to allow prompt isolation and replacement of components that can negatively effect the performance of the system of Toutant.

71. **In regard to Claim 10**, as discussed in the rejection of Claim 1, Toutant in view of Mehrvar, Honig, Libeskind, and Snow teaches a broadcast router containing an output chassis that contains a matrix card.

72. Toutant teaches in paragraph [0035], and in FIG. 1, an interconnection module 140 (FIG. 1) further includes a plurality of optical ports A, B, C, D (FIG. 1) for establishing a plurality of full-duplex optical paths with optical ports of other chassis of a router (a matrix card conditions data prior to outputting data external to a router).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA SMITH whose telephone number is (571)270-

1826. The examiner can normally be reached on Monday-Thursday 9:30am-7pm, Alternating Fridays 9:30am-6pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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